Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A ~~system~~ computer readable medium, storing computer executable instructions thereon for classifying an input image into one of a plurality of output classes[[,]] ~~the plurality of output classes~~ comprising at least three classes, said ~~system comprising~~ executable instructions, when executed by a processor, performing the following process:

determining a candidate output class, at least one rejected output class, and an associated confidence value from a set of associated output classes at each of a plurality of classifiers;

selecting a classifier from the plurality of classifiers having a best confidence value;

eliminating the at least one rejected class at the selected classifier from consideration as the associated class for the input image; and

iteratively repeating the following steps until only one output class remains:

defining a subset of classifiers associated with the candidate output class from the selected classifier;

selecting a new classifier having the best associated confidence value within the defined subset; and

eliminating the at least one rejected classes determined at the selected new classifier from consideration as the associated class for the input image

a plurality of pattern recognition classifiers, each of the plurality of

pattern recognition classifiers representing only two associated classes from the

plurality of output classes, determining a candidate output class and a rejected

output class for the input image and generating a confidence value associated with

the classifier based on the determination; and

an arbitrator that selects a pattern recognition classifier having the best

associated confidence value from the plurality of pattern recognition classifiers and

eliminates the rejected class determined at the selected classifier from consideration

as the associated class for the input image, such that the respective outputs of each

of a plurality of pattern recognition classifiers that represent the rejected class are

ignored, excepting the selected pattern recognition classifier.

Claims 2-11 (Cancelled):

Claim 12 (Currently Amended): A system for classifying image data associated

with a vehicle occupant safety system into an associated one of a plurality of output

classes, said system comprising:

a vision system that images a vehicle interior to provide an input

image;

a plurality of pattern recognition classifiers, each of the plurality of

pattern recognition classifiers having associated first and second output classes from

the plurality of output classes and being operative to select one of the first and

second output classes as a candidate output class for the input image and the other

of the first and second output classes as a rejected output class and generate a

confidence value associated with the classifier based on the selection;

an arbitrator that <u>conducts an iterative process until only one of the</u>

<u>plurality of pattern recognition classifiers, and its associated selected output class,</u>

<u>remain, wherein at each iteration, the arbitrator</u> selects a classifier having ~~the~~ <u>a</u> best

associated confidence value from a classifier set initially comprising the plurality of

classifiers, determines the rejected class associated with the selected classifier, and

removes each classifier within the classifier set having the rejected class as one of

its associated first and second output classes<u>, such that in the next iteration, the</u>

<u>classifier set will include only classifiers that do not have the rejected class as one of</u>

<u>its associated first and second output classes</u>.

Claim 13 (Cancelled).

Claim 14 (Currently Amended): The system of claim [[13]] <u>12</u>, wherein the

candidate class determined by the one remaining classifier is accepted as the output

class associated with the input image, and the accepted class is provided as an input

to the vehicle occupant safety system.

Claim 15 (Original): The system of claim 12 wherein at least one of the plurality of

output classes represents a human adult seated within the vehicle interior.

Claim 16 (Original): The system of claim 12 wherein at least one of the plurality of output classes represents a rearward facing infant seat positioned within the vehicle interior.

Claim 17 (Original): The system of claim 12 wherein at least one of the plurality of output classes represents a human head.

Claim 18 (Original): The system of claim 12 wherein the vision system is operative to produce a two-dimensional image of the vehicle interior.

Claim 19 (Original): The system of claim 12 wherein the vision system is operative to produce a three-dimensional image of the vehicle interior.

Claim 20 (Original): The system of claim 19 wherein the vision system comprises a stereo camera that images the vehicle interior as a stereo disparity map.

Claim 21 (Previously Presented): A method for classifying an input image into an associated one of a plurality of output classes comprising the steps of:

determining a candidate output class, at least one rejected output class, and an associated confidence value from a set of associated output classes at each of a plurality of classifiers;

selecting a classifier from the plurality of classifiers having a best confidence value;

eliminating the at least one rejected class at the selected classifier from consideration as the associated class for the input image; and

iteratively repeating the following steps until only one output class remains:

defining a subset of classifiers associated with the candidate output class from the selected classifier;

selecting a new classifier having the best associated confidence value within the defined subset; and

eliminating the at least one rejected classes determined at the selected new classifier from consideration as the associated class for the input image.

Claim 22 (Cancelled).

Claim 23 (Currently Amended): The method of claim [[23]] 21 further comprising accepting the one remaining output class as the associated output class for the input image, and providing the accepted output class to a vehicle occupant safety system.

Claim 24 (Original): The method of claim 21 further comprising extracting feature data from the input image and providing the extracted feature data to the plurality of classifiers.

Claim 25 (Original): The method of claim 24 wherein extracting feature data from the input image includes extracting at least one feature value from at least one region of interest within the image.

Claim 26 (Original): The method of claim 24 wherein the at least one feature value includes an average grayscale value associated with each region of interest.

Claim 27 (Original): The method of claim 24 wherein the at least one feature value includes a coarseness measure associated with each region of interest.

Claim 28 (Original): The method of claim 24 wherein the at least one feature value includes a contrast measure associated with each region of interest.